AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims, in the application.

LISTING OF CLAIMS:

1. (original) A method to prevent the deterioration of cognitive function in a patient with dementia, comprising:
   a) determining, for each of the two copies of the ApoE gene present in the patient, the nature of the ApoE genotype, wherein
   b) if one or both of the two copies of the ApoE gene present in the patient contain the ε4 allele, then the patient is treated with a ChEI drug.

2. (original) The method of Claim 1, wherein the ChEI is selected from the group shown in Table 1.

3. (original) The method of Claim 2, wherein the ChEI is rivastigmine

4. (original) The method of Claim 3, wherein the patient is treated with 6 mg/day or more of rivastigmine.

5. (original) The method of Claim 1, wherein the determination of deterioration of cognitive function is by use of the ADAS-Cog score.

6. (original) The method of Claim 1, wherein the dementia is Dementia of the Alzheimer Type (DAT).

7. (original) A method to prevent the worsening of behavioral problems in a patient with dementia comprising:
   a) determining, for each of the two copies of the ApoE gene present in the patient, the nature of the ApoE genotype, wherein
   b) if one or both of the two copies of the ApoE gene present in the patient contain the ε4 allele, then the patient is treated with a ChEI drug.

8. (original) The method of Claim 7, wherein the dementia is DAT.

9. (original) The method of Claim 7, wherein the ChEI is chosen from the group shown in Table 1

10. (cancelled)

11. (original) The method of Claim 7, wherein the patient is treated with 6 mg/day or more of rivastigmine.

12. (original) A method to improve the cognitive impairment in a patient with dementia, comprising:

a) determining, for each of the two copies of the ApoE gene present in the individual, the nature of the ApoE genotype, wherein

b) if one or both of the two copies of the ApoE gene present in the individual contain the ε4 allele, then the patient is treated with a ChEI drug.

13. (original) The method of Claim 12, wherein the dementia is DAT.

14. (original) The method of Claim 12, wherein the ChEI is chosen from the group shown in Table 1.

15. (original) The method of Claim 12, wherein the ChEI is rivastigmine.

16. (original) The method of Claim 15, wherein the patient is treated with 6 mg/day or more of rivastigmine.

17. (original) The method of Claim 12, wherein the cognitive impairment is measured by the use of the ADAS-Cog.

18. (original) The method of Claim 17, wherein the improvement is greater than 4 points on the ADAS-cog scale.

19. (original) A method to improve behavioral problems in patients with dementia comprising:

a) determining, for each of the two copies of the ApoE gene present in the individual, the nature of the ApoE genotype, wherein

b) if one or both of the two copies of the ApoE gene present in the individual contain the ε4 allele, then the patient is treated with a ChEI drug.

20. (original) The method of Claim 19, wherein the ChEI is selected from the list shown in Table 1.

21. (cancelled)

22. (original) The method of Claim 21 wherein the dose of rivastigmine is 6 mg/day or greater.

23. (original) The method of Claim 19, wherein the behavioral problems are selected from the group consisting of depression, psychosis, delusions, sleep disturbance, wandering, anger outbursts, aggression, agitation, apathy, anxiety, suspiciousness, fearfulness and paranoia.

24. (original) The method of Claim 19, wherein the dementia is DAT.

25. (original) A method of determining the responsiveness of an individual with dementia to treatment with a ChEI drug comprising:
    a) determining, for each of the two copies of the ApoE gene present in the individual, the nature of the ApoE genotype, wherein
    b) if one or both of the two copies of the ApoE gene present in the individual contain the ε4 allele, then the patient would be placed in a good responder group; or
    c) if neither of the two copies of the patients ApoE gene contain the ε4 allele then the patient is placed in a poor responder group.

26. (original) The method of Claim 25, wherein the dementia is selected from the group consisting of: DAT, vascular dementia, Lewy body dementia, Parkinson's disease dementia, Down Syndrome dementia and mild cognitive impairment.

27. (original) The method of Claim 25, wherein the dementia is DAT.

28. (original) A method to predict the level of care that will be required, in the near future, for a patient with dementia comprising:
    a) determining, for each of the two copies of the ApoE gene present in the patient, the nature of the ApoE genotype, wherein
        i) if one or both of the two copies of the ApoE gene present in the patient contain the ε4 allele, then the patient will be classified in the "remain stable or improve" near future treatment group,

ii) treatment with a ChEI drug will be expected to stabilize or improve the patients symptoms and the patient be predicted to not require an increase in the required level of care in the near future; and

iii) if neither of the two copies of the ApoE gene present in the patient contain the ε4 allele then the patient would be classified in the "continued deterioration" near future treatment group wherein the patients symptoms would be predicted to show deterioration and the patient would be likely to require an increased level of care in the near future.

29. (original) The method of Claim 24, wherein the ChEI is selected from the group shown in Table 1.

30. (cancelled)

31. (original) The method of Claim 26, wherein the rivastigmine is used at a dose of 6 mg/day or more.

32. (original) The method of Claim 24, wherein the dementia is DAT.

33. (withdrawn) A kit for determining the presence or absence of the ApoE4 allele in a patient, comprising:

a) at least one reagent specific for detecting the presence or absence of the ApoE4 allele; and

b) instructions for recommended treatment options based on the ApoE4 status.

34. (withdrawn) The kit of Claim 33, wherein the reagent comprises nucleic acids for the detection of the ApoE4 allele in a patient.

35. (withdrawn) The kit of Claim 33, wherein the reagent comprise at least one gene specific genotyping oligonucleotide.

36. (withdrawn) The kit of Claim 33, wherein the reagent comprise two gene specific genotyping oligonucleotides.

37. (withdrawn) The kit of Claim 33, wherein the reagent comprise at least one gene specific genotyping primer composition comprising at least one gene specific genotyping oligonucleotide.

38. (withdrawn) The kit of Claim 37, wherein the gene specific genotyping primer composition comprises at least two sets of allele specific primer pairs.

39. (withdrawn) The kit of Claim 38, wherein the two allele specific genotyping oligonucleotides are packaged in separate containers.

40. (withdrawn) A kit for use in determining treatment strategy for a patient with dementia comprising:
    (a) an antibody able to recognize and bind to the polypeptide expression product of the ApoE4 gene;
    (b) a container suitable for containing the said antibody and a sample of body fluid from the said individual wherein the antibody can contact the ApoE4 polypeptide, if it is present;
    (c) means to detect the combination of the said antibody with ApoE4 polypeptide; and
    (d) instructions for use of kit.

41. (withdrawn) A kit for use in determining treatment strategy for a patient with dementia, comprising:
    (a) a polynucleotide able to recognize and bind to the mRNA expression product of the ApoE4 gene;
    (b) a container suitable for containing the said polynucleotide and a sample of body fluid from the said individual wherein the said polynucleotide can contact the ApoE4 mRNA, if it is present;
    (c) means to detect the combination of the said polynucleotide with the ApoE4 mRNA; and
    (d) instructions for use of kit.

42. (withdrawn) A kit for use in determining treatment strategy for a patient with a dementia comprising:
    (a) a polynucleotide able to recognize and bind to some portion of the DNA sequence of the ApoE4 gene;
    (b) a container suitable for containing the said polynucleotide and a sample of body fluid from the said individual wherein the polynucleotide can contact the ApoE4 DNA sequence, if it is present;
    (c) means to detect the combination of the said polynucleotide with the ApoE4 DNA sequence; and
    (d) instructions for use of kit.